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L Number	Hits	Search Text	DB	Time stamp
1	176	(73/504.16).CCLS.	USPAT;	2003/07/02
3	0	20010010169.URPN.	US-P PUB USPAT	12:38 2003/07/02 12:50
4	5	("4381672" "4628734" "5451828" "5821420" "6439052").PN.	USPAT	2003/07/02 12:53
5	4	("4898031" "5352918" "5417312" "5892153").PN.	USPAT	2003/07/02 12:57
6	0	6536281.URPN.	USPAT	2003/07/02 12:58
7	3	("5581032" "5767404" "6044708").PN.	USPAT	2003/07/02 13:07
8	8	("4873867" "4920799" "5014554" "5038613" "5212985" "5233873" "5239866" "5379640").PN.	USPAT	2003/07/02 13:08
9	6	5581032.URPN.	USPAT	2003/07/02 13:12
10	0	6220093.URPN.	USPAT	2003/07/02 13:13
11	3	("5581032" "5767404" "6044708").PN.	USPAT	2003/07/02 13:14
12	8	("4628734" "5212985" "5408876" "5445025" "5635642" "5719460" "5723788" "5763781").PN.	USPAT	2003/07/02 13:19
13	1	6101878.URPN.	USPAT	2003/07/02 13:20
25	164	(310/370).CCLS.	USPAT; US-PGPUB	2003/07/02 13:27
53	49	(73/504.15).CCLS.	USPAT; US-PGPUB	2003/07/02 14:58
52	364	(73/504.12).CCLS.	USPAT; US-PGPUB	2003/07/02 15:43
58	18	(angular near3 sensor) same (base and (cover or housing))	EPO; JPO; DERWENT	2003/07/02 15:46

fixed onto the holding plate, an elastic body disposed on an end part of at least one selected from the holding plate and circuit board, a case housing the resonator, first base, holding plate, circuit board and elastic body and provided with an opening, and a second base put in place so as to close the opening of the case. The resonator has a short side and a long side. The resonator is located with the direction of the long side thereof arranged perpendicular to the second base, the elastic body is located between an end part of at least one selected from the holding plate and circuit board and the walls of the case, and at least one selected from the holding plate and circuit board is held by the case with an elastic pressure of the elastic body, thereby allowing the compression rate of the elastic body to be prevented from varying. As a result, an angular velocity sensor having stable output characteristics is realized.

CLAIMS:

1. An angular velocity sensor comprising: (a) ⁽³¹⁾ a resonator including a ⁽³²⁾ resonating member and a connecting member; (b) a first base connected to said connecting member; (c) ⁽³⁴⁾ a holding plate to hold said first base; (d) a circuit ⁽³⁹⁾ board fixed onto said holding plate; (e) an elastic body disposed on an end part of at least one selected from said holding plate and circuit board; and ⁽⁴⁵⁾ (f) a case housing said resonator, first base, holding plate, circuit board and elastic body and having an opening, wherein said elastic body is located between an inner walls of said case an end part of at least one of said holding plate and said circuit board, and at least one selected from said holding plate and circuit board is held by said case via an elastic pressure of said elastic body.
2. The angular velocity sensor according to claim 1, further comprising ⁽⁴⁷⁾ (g) a second base put in place so as to close said opening of said case, wherein said resonator has a short side and a long side, and said resonator is located in such a way as said long side of said resonator is directed perpendicular to said second base.
3. The angular velocity sensor according to claim 2, wherein said resonator ⁽²¹⁾ comprises a first resonating member, a second resonating member, a driving electrode and a detecting electrode, each respective end part of said first resonating member and second resonating member is connected to said connecting member, and said driving electrode and detecting electrode are disposed on at least one selected from said first resonator and second resonator. ⁽²⁶⁾
4. The angular velocity sensor according to claim 3, wherein said driving electrode and detecting electrode have an output terminal, respectively, said first base has a plurality of terminal insertion holes, and said respective output terminals pass through said plurality of terminal insertion holes.

5. The angular velocity sensor according to claim 3, wherein said circuit board has an electronic device, a power supply electrode, a GND electrode and an output electrode, and said electronic device processes an output signal produced at said detecting electrode according to an angular velocity.
6. The angular velocity sensor according to claim 3, wherein said case is shaped like a bottomed cylinder.
7. The angular velocity sensor according to claim 1, wherein said elastic body is a rubber molded body formed of rubber.
8. The angular velocity sensor according to claim 1, further comprising: (h) a cover that is fixed onto said first base and covers said resonator.
9. The angular velocity sensor according to claim 1, further comprising: (g) a second base put in place so as to close said opening of said case; and (h) a cover that is fixed onto said first base and covers said resonator, wherein said resonator has a short side and a long side, said resonator is located in such a way as said long side of said resonator is directed perpendicular to said second base, said resonator comprises a first resonating member, a second resonating member, a driving electrode and a detecting electrode, each respective end part of said first resonating member and second resonating member is connected to said connecting member, said driving electrode and detecting electrode are disposed on at least one selected from said first resonator and second resonator, said driving electrode and detecting electrode have an output terminal, respectively, said first base has a plurality of terminal insertion holes, said respective output terminals pass through said plurality of terminal insertion holes, said circuit board has an electronic device, a power supply electrode, a GND electrode and an output electrode, said electronic device processes an output signal produced at said detecting electrode according to an angular velocity, and said case is shaped like a bottomed cylinder.
10. The angular velocity sensor according to claim 9, wherein said holding plate has at least two holding protrusions, said two holding protrusions are fixed onto said circuit board, thereby allowing said circuit board to be held by said holding plate.
11. The angular velocity sensor according to claim 9, wherein said elastic body has a small cross-sectional area part, and said small cross-sectional area part reduces a compressive force of said resonator in a direction perpendicular to said long side direction of said resonator.
12. The angular velocity sensor according to claim 9, wherein a center of mass formed by combining said resonator, first base, cover, holding plate and circuit board almost coincides with a center of mass of said elastic body.

13. The angular velocity sensor according to claim 9, wherein said holding plate has at least two holding members, and said two holding members are swaged onto said first base, thereby allowing said first base to be affixed to said holding plate.

14. A manufacturing method of angular velocity sensors comprising the steps of: (a) producing a resonator having a resonating member and a connecting member; (b) producing a first base; (c) producing a holding plate; (d) producing a circuit board; (e) producing an elastic body; (f) producing a case; (g) connecting said connecting member of said resonator to said first base; (h) having said circuit board held onto said first base; (i) fixing said first base onto said holding plate; (j) putting together said resonator, first base, holding plate, circuit board and elastic body so as to have an end part of at least one selected from said holding plate and circuit board held by said elastic body; and (k) having said assembly formed of said resonator, first base, holding plate, circuit board and elastic body housed in said case so as to have said holding plate and circuit board located inside said case via said elastic body.

15. The manufacturing method of angular velocity sensors according to claim 14, further comprising the step of: (i) producing a second base, wherein said resonator has a short side and a long side, said step (j) has the step of putting together said resonator, first base, holding plate, circuit board, second base and elastic body so as to have an end part of at least one selected from said holding plate and circuit board held by said elastic body, and said step (k) has the steps of: pressing into a case an assembly formed of said resonator, first base, holding plate, circuit board, second base and elastic body so as to have said long side direction of said resonator arranged perpendicular to said second base; and closing an opening of said case with said second base in such a way as having at least one selected from said holding plate and circuit board held onto said case by an elastic pressure of said elastic body.

16. The manufacturing method of angular velocity sensors according to claim 15, wherein said step of producing said resonator has the step of producing a resonator comprising a first resonating member, a second resonating member, a driving electrode and a detecting electrode, each respective end part of said first resonating member and second resonating member is connected to said connecting member, and said driving electrode and detecting electrode are disposed on at least one selected from said first resonating member and second resonating member.

17. The manufacturing method of angular velocity sensors according to claim 14, further comprising the step of: (m) producing a cover; wherein said step (j) includes a step of fixing said cover onto said first base so as to cover said resonator.

18. The manufacturing method of angular velocity sensors according to claim 14, wherein said driving electrode and detecting electrode have an output terminal, respectively, said first base has a plurality of terminal insertion holes, and said step (i) includes the step of passing said respective output terminals through said plurality of terminal insertion holes.

19. The manufacturing method of angular velocity sensors according to claim 14, wherein said circuit board includes an electronic device, a power supply electrode, a GND electrode and an output electrode, and said electronic device processes an output signal produced at said detecting electrode according to an angular velocity.

20. The manufacturing method of angular velocity sensors according to claim 15, wherein a small cross-sectional area part is provided to said elastic body in said step of producing said elastic body, said holding plate and circuit board are located inside said case via said small cross-sectional area part of said elastic body, and said small cross-sectional area part allows a compressive force to be reduced in said long side direction of said resonator.

21. The manufacturing method of angular velocity sensors according to claim 14, wherein said step of producing said elastic body includes the step of producing a molded rubber piece by applying a molding process to a rubber material.

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PALM INTRANET
Inventor Name Search Result

Your Search was:

Last Name = YAMAZAKI

First Name = TOSHIO

Application#	Patent#	Status	Date Filed	Title	Inventor Name
<u>10284112</u>	Not Issued	030	10/31/2002	PROCESS FOR PREPARING OCULAR LENS WITH URETHANE COMPOUND AND PROCESS FOR PREPARING URETHANE COMPOUND FOR MEDICAL INSTRUMENTS	YAMAZAKI, TOSHIO
<u>10284104</u>	Not Issued	030	10/31/2002	PROCESS FOR PREPARING URETHANE COMPOUND FOR MEDICAL INSTRUMENTS	YAMAZAKI, TOSHIO
<u>10203652</u>	Not Issued	020	10/23/2002	WIRING BOARD, SEMICONDUCTOR DEVICE, AND METHOD OF MANUFACTURING WIRING BOARD	YAMAZAKI, TOSHIO
<u>10042408</u>	Not Issued	041	01/08/2002	FABRICATION PROCESS OF SEMICONDUCTOR PACKAGE AND SEMICONDUCTOR PACKAGE	YAMAZAKI, TOSHIO
<u>10008616</u>	Not Issued	071	10/23/2001	FABRICATION PROCESS OF SEMICONDUCTOR PACKAGE AND SEMICONDUCTOR PACKAGE	YAMAZAKI, TOSHIO
<u>09959794</u>	Not Issued	041	02/12/2002	ANGULAR SENSOR AND METHOD OF MANUFACTURE THEREOF	YAMAZAKI, TOSHIO
<u>09615738</u>	<u>6384171</u>	150	07/13/2000	COATING COMPOSITION AND COATED SILICONE RUBBER MEMBER	YAMAZAKI, TOSHIO
<u>09612416</u>	<u>6492307</u>	150	07/07/2000	PERSONAL CLEANSING SHEET	YAMAZAKI, TOSHIO
<u>09608004</u>	<u>6495651</u>	150	06/30/2000	PROCESS FOR PREPARING URETHANE COMPOUND FOR MEDICAL INSTRUMENTS	YAMAZAKI, TOSHIO

<u>09541041</u>	<u>6236108</u>	150	03/31/2000	SUBSTRATE FOR HOLDING A CHIP OF SEMI-CONDUCTOR PACKAGE, SEMI-CONDUCTOR PACKAGE, AND FABRICATION PROCESS OF SEMI-CONDUCTOR PACKAGE	YAMAZAKI, TOSHIO
<u>09487682</u>	<u>6365432</u>	150	01/19/2000	FABRICATION PROCESS OF SEMICONDUCTOR PACKAGE AND SEMICONDUCTOR PACKAGE	YAMAZAKI, TOSHIO
<u>09326316</u>	Not Issued	161	06/07/1999	FABRICATION PROCESS OF SEMICONDUCTOR PACKAGE AND SEMICONDUCTOR PACKAGE	YAMAZAKI, TOSHIO
<u>09013069</u>	<u>5993948</u>	150	01/26/1998	MAGNETIC RECORDING MEDIUM	YAMAZAKI, TOSHIO
<u>09006203</u>	Not Issued	161	01/13/1998	COLOR IMAGE FORMING APPARATUS THAT CARRIES OUT MODE-SPECIFIC COLOR CONVERSION PROCESSING	YAMAZAKI, TOSHIO
<u>09006202</u>	<u>6091520</u>	150	01/13/1998	COLOR IMAGE FORMING DEVICE	YAMAZAKI, TOSHIO
<u>08981509</u>	<u>6223429</u>	150	07/30/1998	PROCESS FOR FABRICATING SEMICONDUCTOR DEVICE	YAMAZAKI, TOSHIO
<u>08903996</u> Patent # 6064111	<u>6064111</u>	150	07/31/1997	SUBSTRATE FOR HOLDING A CHIP OF SEMI-CONDUCTOR PACKAGE, SEMI-CONDUCTOR PACKAGE, AND FABRICATION PROCESS OF SEMI-CONDUCTOR PACKAGE	YAMAZAKI, TOSHIO
<u>08805575</u>	<u>5777032</u>	150	02/25/1997	OCULAR LENS AND A METHOD FOR ITS PRODUCTION	YAMAZAKI, TOSHIO
<u>08800175</u>	Not Issued	161	02/13/1997	MAGNETIC RECORDING MEDIUM	YAMAZAKI, TOSHIO
<u>08781230</u>	Not Issued	161	01/10/1997	MAGNETIC RECORDING MEDIUM	YAMAZAKI, TOSHIO
<u>08774078</u>	Not Issued	161	12/23/1996	SILICON-CONTAINING COMPOUND AND OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>08754958</u>	<u>5776596</u>	150	11/22/1996	MAGNETIC RECORDING MEDIUM HAVING A MAGNETIC LAYER AND INTERMEDIATE LAYER EACH CONTAINING A SPECIFIED FATTY ACID AND FATTY	YAMAZAKI, TOSHIO

				ACID ESTER	
<u>08731982</u>	<u>5670594</u>	150	10/23/1996	LOW WATER-ABSORPTIVE OCULAR LENS MATERIAL, LOW WATER-ABSORPTIVE OCULAR LENS SHAPED PRODUCT MADE THEREOF, LOW WATER ABSORPTIVE OCULAR LENS MADE THEREOF AND PROCESS FOR ITS PRODUCTION	YAMAZAKI , TOSHIO
<u>08716362</u>	<u>5976912</u>	150	09/18/1996	FABRICATION PROCESS OF SEMICONDUCTOR PACKAGE AND SEMICONDUCTOR PACKAGE	YAMAZAKI , TOSHIO
<u>08709845</u>	<u>5817726</u>	150	09/10/1996	WATER-ABSORPTIVE SOFT OCULAR LENS MATERIAL, WATER-ABSORPTIVE SOFT OCULAR LENS SHAPED PRODUCT MADE THEREOF, WATER-ABSORPTIVE SOFT OCULAR LENS MADE THEREOF AND PROCESS FOR ITS PRODUCTION	YAMAZAKI , TOSHIO
<u>08709691</u>	<u>5786434</u>	150	09/10/1996	WATER-ABSORPTIVE SOFT CONTACT LENS MATERIAL AND CONTACT LENS MADE THEREOF	YAMAZAKI , TOSHIO
<u>08706249</u>	<u>5987165</u>	150	09/04/1996	IMAGE PROCESSING SYSTEM	YAMAZAKI , TOSHIO
<u>08625850</u>	<u>5776590</u>	150	04/04/1996	MAGNETIC RECORDING MEDIUM	YAMAZAKI , TOSHIO
<u>08588388</u>	<u>5587445</u>	150	01/18/1996	HIGHLY OXYGEN-PERMEABLE HEAT-RESISTANT MATERIAL	YAMAZAKI , TOSHIO
<u>08582023</u>	<u>5556929</u>	150	01/02/1996	OCULAR LENS MATERIAL	YAMAZAKI , TOSHIO
<u>08570387</u>	<u>5703159</u>	150	12/11/1995	MODIFICATION OF RESINS WITH ISOCYANATOSILOXANES	YAMAZAKI , TOSHIO
<u>08544412</u>	<u>5658849</u>	150	10/10/1995	THERMAL TRANSFER MATERIAL	YAMAZAKI , TOSHIO
<u>08497052</u>	<u>5516868</u>	150	06/30/1995	VINYL COPOLYMER, METHOD FOR MAKING, AND ROOM TEMPERATURE CURING RESIN COMPOSITION	YAMAZAKI , TOSHIO
<u>08335407</u>	Not	161	11/03/1994	VINYL COPOLYMER, METHOD	YAMAZAKI ,

	Issued			FOR MAKING, AND ROOM TEMPERATURE CURING RESIN COMPOSITION	TOSHIO
<u>08302404</u>	Not Issued	166	09/08/1994	OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>08291066</u>	<u>5508369</u>	150	08/17/1994	ORGANOPOLYSILOXANES HAVING A SILANOL GROUP AND PROCESS OF MAKING THEM	YAMAZAKI, TOSHIO
<u>08274293</u>	<u>5543442</u>	150	07/12/1994	OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>08268866</u>	<u>5504992</u>	150	06/30/1994	FABRICATION PROCESS OF WIRING BOARD	YAMAZAKI, TOSHIO
<u>08149530</u>	<u>5416180</u>	150	11/09/1993	SOFT OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>08111452</u>	<u>5346946</u>	150	08/25/1993	OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>08110946</u>	<u>5416132</u>	150	08/24/1993	OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>08026792</u>	<u>5342983</u>	150	03/05/1993	ORGANIC SILICON COMPOUNDS	YAMAZAKI, TOSHIO
<u>07895836</u>	<u>5250583</u>	150	06/09/1992	OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>07808227</u>	<u>5142037</u>	150	12/16/1991	PLATINUM CATALYST COMPOSITION AND PROCESS FOR PRODUCING THE SAME	YAMAZAKI, TOSHIO
<u>07633937</u>	<u>5168225</u>	150	12/26/1990	METHOD OF ANALYZING 3D NMR SPECTRUM	YAMAZAKI, TOSHIO
<u>07612454</u>	<u>5108971</u>	150	11/14/1990	PLATINUM CATALYST COMPOSITION AND PROCESS FOR PRODUCING THE SAME	YAMAZAKI, TOSHIO
<u>07596181</u>	<u>5081200</u>	150	10/12/1990	LOW STAINABLE PRIMER COMPOSITION AND METHOD OF PRODUCING THE SAME	YAMAZAKI, TOSHIO
<u>07460662</u>	<u>4954586</u>	150	01/03/1990	SOFT OCULAR LENS MATERIAL	YAMAZAKI, TOSHIO
<u>06746685</u>	<u>4610951</u>	150	07/25/1985	A PROCESS OF USING A FLEXIBLE, FAST PROCESSING PHOTOPOLYMERIZABLE COMPOSITION	YAMAZAKI, TOSHIO
<u>06687756</u>	<u>D287755</u>	150	12/31/1984	ULTRASONIC HUMIDIFIER	YAMAZAKI, TOSHIO
<u>06501199</u>	<u>4539286</u>	150	06/06/1983	FLEXIBLE, FAST PROCESSING, PHOTOPOLYMERIZABLE	YAMAZAKI, TOSHIO

				COMPOSITION	
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